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# A New Species of *Mimosa* (Fabaceae, Mimosoideae) from Madagascar

Gabriel Lefèvre and Jean-Noël Labat

Museum National d'Histoire Naturelle, Département de Systématique et Evolution,  
USM 602, Taxonomie et Collections, Unité de Botanique, Phanérogamie, 16, rue Buffon,  
75005 Paris, France. glefevre@mnhn.fr; labat@mnhn.fr

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**ABSTRACT.** The new species *Mimosa manomboensis* Lefèvre & Labat (Fabaceae, Mimosoideae), known only from two populations in the Mikea Forest in southwestern Madagascar, is described, illustrated, and assigned a provisional IUCN conservation status of critically endangered.

**RÉSUMÉ.** Une nouvelle espèce, *Mimosa manomboensis* Lefèvre & Labat (Fabaceae, Mimosoideae), connue seulement de deux populations de la Forêt de Mikea dans le Sud-Ouest de Madagascar, est décrite et illustrée. Un statut de conservation UICN provisoire, espèce en danger critique d'extinction, est proposé.

**Key words:** Fabaceae-Mimosoideae, Madagascar, *Mimosa*, taxonomy.

*Mimosa* L. is a large pantropical genus of about 500 species, with most of its diversity (about 460 species) occurring at low and middle elevations in tropical America (Barneby, 1991), but with some diversity in the Old World tropics, and with a small center of diversification in Madagascar (Du Puy et al., 2002). In the recent revision of the Leguminosae of Madagascar (Villiers, 2002), the genus *Mimosa* comprised 33 species, all endemic or near-endemic except *M. pigra* (also native to America, Africa, and islands in the Indian Ocean) and *M. pudica* (introduced probably from America and now a common pantropical weed). This study complemented previous treatments for tropical and southern Africa (Brenan, 1959; Brenan & Brummitt, 1970; Ross, 1975), in which only 5 native species and 8 introduced species (Lebrun & Stork, 1992) were recognized.

While conducting ethnobotanical research in the xerophytic Mikea Forest in southwestern Madagascar, the first author collected material that clearly represents a new species. Several months of fieldwork in the area around the village of Manombo revealed a single population of this distinctive *Mimosa*. A second collection comes from the northern part of Mikea Forest. Previous systematic sampling in the area by the second author and D. J. Du Puy did not yield any material of this localized species, nor was any found by J.-F. Villiers and D. J. Du Puy during

their comprehensive examination of Mimosoideae from Madagascar at key herbaria, including BR, G, K, MO, P, TAN, TEF, and WAG. Further verification of collections at TAN and TEF, where Malagasy and visiting botanists have systematically deposited duplicate material during the past decade, as well as at K, MO, and G, did not uncover any recently collected material. The new species described here thus appears to be rare and to have a very limited distribution, confirming the first author's initial observations. Given the very distinctive nature of our novelty, it therefore seems preferable to publish this new species now (despite its only being known from two collections) so that botanists can continue to look for additional populations and the plant can be taken into consideration in conservation programs. It should be noted that the situation in the Manombo area is of great concern, with a high level of human pressure on the vegetation from clearing for cultivation and charcoal production.

***Mimosa manomboensis*** Lefèvre & Labat, sp. nov.

TYPE: Madagascar. Tuléar Prov.: Manombo, Fiherenamasay, 22°51'42"S, 43°26'59"E, ca. 50 m, 16 Feb. 2002 (fl, fr), G. Lefèvre & V. Mily 20 (holotype, P(P00273020); isotypes, MO, TAN). Figure 1.

A *Mimosa dumetaria* Villiers lomento recto vel arcuato, angusto, 8 mm lato, apice apiculato atque dense aculeato, transversis segmentis 1-semina, replo dense aculeato in duobus axibus, seminibus atrobrunneis, planis, 1 mm crassis, areola magna (2 × 1.7 mm), pleurograma in uno sulco, luteola a seminibus colore distincta, differt.

*Shrub* up to 3 m tall, habit cernuous; twigs armed with short, sparse, uncinat prickles ca. 2 mm long, young shoots subglabrous to appressed pubescent; stipules present. *Leaves* bipinnate; *petiole* (0.8–)1–3 cm long, with prickles, finely pubescent; *rachis* (0.7–)1–3 cm long, grooved above, finely pubescent, with prickles beneath; *pinnae* (1)2 to 5 pairs per leaf, the axis of the pinnae 1–2.5 cm long, finely pubescent, sometimes with prickles beneath; *stipels* present; *leaflets* 6 to 19 pairs per pinna, the basal and apical pairs reduced, subsessile, petiolule up to



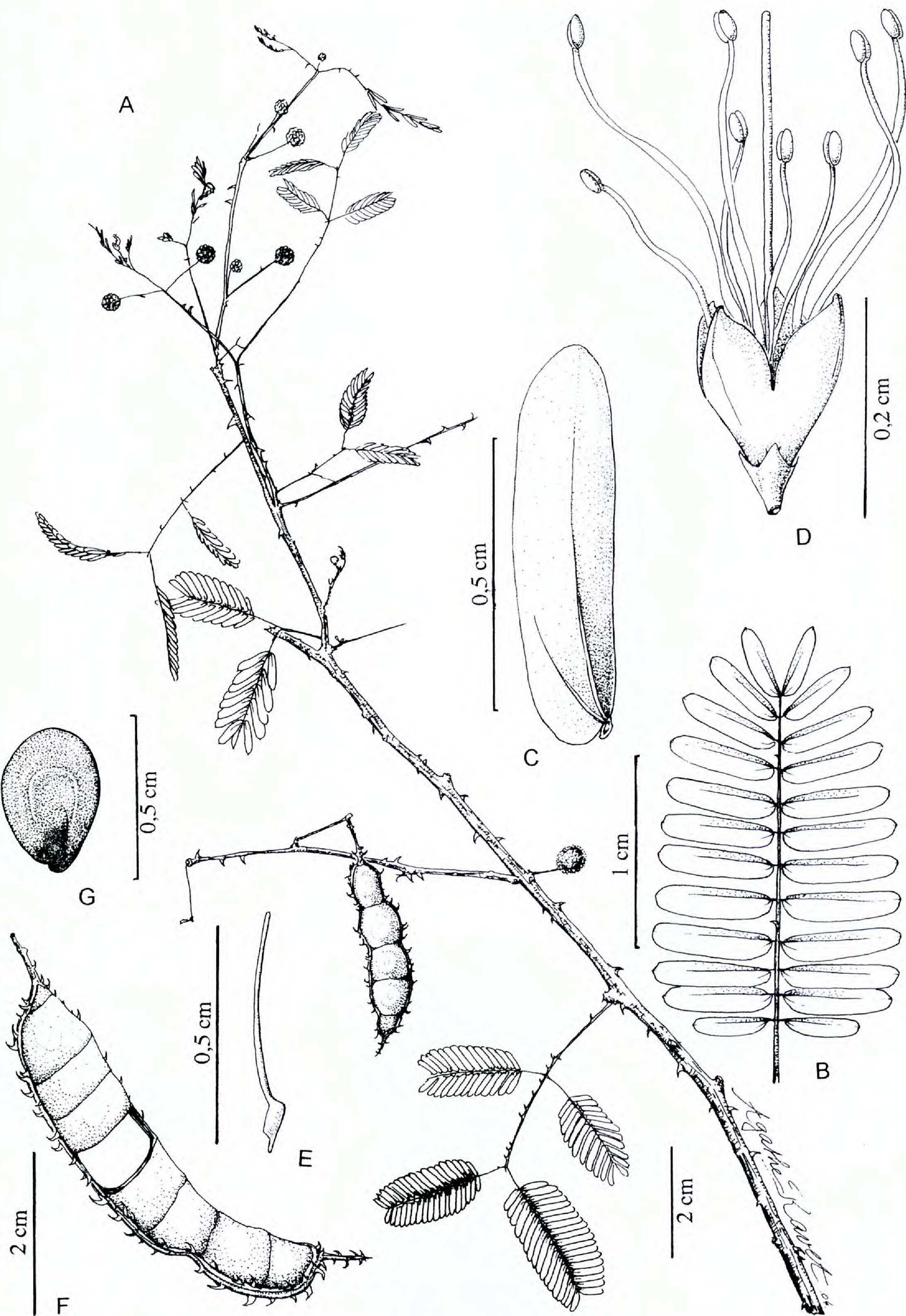


Figure 1. *Mimosa manomboensis* Lefèvre & Labat. —A. Flowering and fruiting shoot. —B. Pinna. —C. Leaflet. —D. Flower. —E. Gynoecium. —F. Lomentum. —G. Seed. (A–G drawn from Lefèvre & Mily 20, P.)



0.5 mm long, oblong, the proximal margin rounded-truncate at the base, the distal margin very shortly rounded attenuate, the apex rounded, glabrous on both surfaces, up to 7.5 × 1.9 mm; the midvein situated nearer to the distal margin, the lateral veins 1 or 2 visible, originated from the base in the proximal part of the leaflet. *Inflorescence* axillary, solitary or paired heads, ± 0.5 cm diam., peduncle 0.5–1 cm, sometimes with prickles. *Flowers* sessile; *calyx* 0.7 mm long, the lobes triangular, ciliate on the margin; *corolla* 2 mm long, white, the lobes with a small terminal green point; *stamens* 8, in 2 unequal cycles, 4.2–5 mm long; *ovary* 0.9 mm long, glabrous, with a stipe 0.3 mm long, the style 4.25 mm long. *Lomentum* green to yellow-brown, straight or curved, 3–5 cm long, ± 0.8 cm wide, segmented and separating transversely into 4 to 8 1-seeded indehiscent segments falling free of replum, the base attenuate, stipitate; stipe 0.6 cm long with prickles, the apex apiculate, densely prickly; the replum densely prickly with the prickles alternate in two lines, persistent; *seeds* oblong-ellipsoid, ca. 5 × 3 × 1 mm, very dark brown, strongly flattened, *areole* large (2 × 1.7 mm), central; *pleurogram* sunken, U-shaped, arms of equal length, yellow to white.

*Habitat and distribution.* In xerophytic forest, on sandy soils at an altitude of about 50–100 m, in the Mikea Forest, southwestern Madagascar.

*Phenology.* Flowering and fruiting in January to February.

*Vernacular name.* Roy (Masikoro dialect, *Ranaivojaona* 271, in sched.), Roy haretsy (Masikoro dialect, *Lefèvre & Mily* 20, in sched.).

*Local uses.* A decoction of the roots and stems is used as a treatment of Fontanel’s disease by the Masikoro people (pers. obs.).

*Conservation status.* The species appears to be a very localized narrow endemic, with only two small populations known from disturbed xerophytic forest, on sandy soils, in the Mikea Forest, giving it an extent of occurrence (EO) of about 800 km<sup>2</sup> and an area of occupancy (AO) of less than 20 km<sup>2</sup>. A preliminary status of Endangered (EN B1abii B2abii) can be assigned to the species (following IUCN Red List criteria, IUCN, 2001).

*Discussion.* *Mimosa manomboensis* resembles and is most easily confused with *M. dumetaria* in general habit, the size and shape of the leaves, presence of prickles on the stem and the leaves, axillary inflorescences, and general aspect of the pods. Despite these similarities, *M. manomboensis* differs from *M. dumetaria* in its oblong, narrow (8 mm wide),

straight to curved pod with a persistent densely prickly apical point, which fractures transversely into 1-seeded segments that fall away from the replum, as compared to the wider (12–15 mm), oblong-elliptic to oblong, straight pod with a deciduous non-prickly apical point of *M. dumetaria*, which does not break into 1-seeded segments, but rather has the central portion containing the seeds that falls away as a single unit. The new species also differs in its replum, which has dense prickles that form two lines instead of a replum with few prickles in a single line. *Mimosa manomboensis* has very dark brown, strongly flattened, 1 mm thick seeds, with a large areole (2 × 1.7 mm) and a sunken yellow to white pleurogram, instead of brown, less flattened, 1.4 mm thick seeds (incorrectly described as black in the original description (Villiers, 2002); the type specimens of *M. dumetaria* in P and TEF definitely have brown seeds), with a small areole (1 × 1 mm) and a pleurogram in the same color as the seed, not sunken but in the same plane as the surface of the seed.

*Paratype.* MADAGASCAR. Forêt de Mikea, Ambovoasay, Basibasy, Morombe, 22°10’13”S, 43°31’30”E, 100 m, 31 Jan.–01 Feb. 2000, R. Ranaivojaona 271 (MO not seen, P, TAN not seen).

To identify *M. manomboensis* using Villiers’s (2002: 170–172) key, the following modification is proposed:

Replace the couplet 10 by the following new one; insert a new couplet 10\* between 10 and 11 as follows:

10. Inflorescence axillary, consisting of solitary or paired heads; fruit less than 1.5 cm wide; petiole less than 3 cm long; pinnae typically with more than 11 pairs of leaflets . . . . . 10\*
- 10\*. Inflorescence terminal or axillary, consisting of a panicle of heads; fruit more than 1.5 cm wide; petiole more than 3 cm long, pinnae with up to 11 pairs of leaflets. . . . . 11
- 10\*. Lomentum 8 mm wide, with a persistent densely prickly apiculate apex, fracturing transversely into 1-seeded segments that fall away from the replum; seeds very dark brown, strongly flattened, 1 mm thick, with a large areole (2 × 1.7 mm), and a yellow to white sunken pleurogram . . . . *M. manomboensis*
- Lomentum 12–15 mm wide, with a deciduous non-prickly apex, not breaking into separate segments, the central portion falling away as a single unit; seeds brown, not strongly flattened, 1.4 mm thick, with a small areole (1 × 1 mm) and a brown pleurogram that is not sunken and is the same color as the seed. . . . . *M. dumetaria*

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